

STATUS OF STATISTICS

An analysis, as of the 10th of this month, of the current pricing and inventory status trends in the TVRO industry. Users of this data are warned that CJR 'samples' key OEMs and distributors on the 10th of each month to determine trends and averages. Dealers will find this data useful in planning their own purchasing schedules for the coming 30 day period.

CURRENT PRICING/LNAs

For 100 degree LNAs, 50 dB gain, CWO terms, 3 lot purchase.

- 1) Lowest price reported: \$269.00
- 2) Highest price recorded: \$360.00
- 3) Average price recorded: \$310.00

CURRENT SHIPMENT/LNAs

- 1) Greatest decline reported: -5 %
- 2) Greatest increase reported: +40 %
- 3) Average 30 day change: +16 %

CURRENT PRICING/ANTENNAS

- 1) Percentage reporting price declines -15 %
- 2) Percentage reporting price advances +5 %
- 3) Average 30 day change: -1 %

CURRENT SHIPMENTS/ANTENNAS

- 1) Greatest decline reported: -5 %
- 2) Greatest advance reported: +10 %
- 3) Average 30 day change: +3 %

CURRENT PRICING/RECEIVERS

- 1) Percentage reporting price declines: -10 %
- 2) Percentage reporting price advances: 0 %
- 3) Average 30 day change: -7 %

CURRENT SHIPMENTS/RECEIVERS

- 1) Greatest decline reported: -15 %
- 2) Greatest advance reported: +35 %
- 3) Average 30 day change: +8 %

EARLY WARNING (Next 30 days)

- | | |
|-----------------------------------|---------------|
| 1) Equipment shortages predicted: | new receivers |
| 2) Equipment surplus predicted: | none |
| 3) Biggest downward price move: | LNAs |
| 4) Biggest upward price move: | Antennas |

In surveying individual OEMs and distributors for the 'raw data' that goes into the above monthly summary, CJR pledges complete anonymity to its sources'. Dealers are asked NOT to contact CJR for information on 'lowest pricing' or 'greatest declines' referenced here; our pledge to sources is unbreakable! Many issues of CJR do, however, contain 'insert flier' sheets from OEMs and distributors announcing (as in advertising) current marketing specials.

SEPTEMBER 1983

STATS	page 1
KEEPING UP	page 2
MARKETING	page 3
INSIDER	page 4
INDUSTRY	page 7
SERVICE	page 10

MID MONTH MEMO

Battle of the giants; Channel Master is defending a suit brought by the R.L. Drake Co. alleging CM has engaged in unfair copyright infringement, unfair or deceptive trade practices on home TVRO receivers.

DRAKE charges CM switched from a Drake designed and produced receiver, built for CM, to a 'copy' now being built by CM in Taiwan. DRAKE alleges CM has not told distributors/dealers the current units are no longer of DRAKE manufacture which is "likely to cause confusion and mislead the trade that the products are (still being) made by DRAKE."

Damages, and profits are being asked. DRAKE has issued a press release on the matter; CM says their attorneys are studying the charges and it has no further comment 'at this time.'

SPEAKING of battles, SPACE has decided to do battle directly with STTI in VEGAS in MARCH. Both will hold three day 'events' barely week apart (SPACE comes up first).

NASDA. First you see them, then you don't. Ooops . . . here they are again! CJR discovers NASDA's announced death (see August CJR) was pre-mature; after emergency surgery, the dealer trade association is back running again. Details inside.

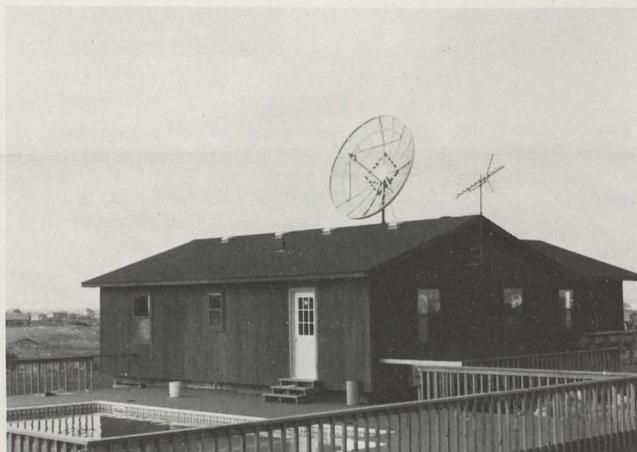
Cooper James Report

CJR (The) Cooper James Report is published and AI Rmailed on the 15th of each month by CJR Limited, a Turks & Caicos Corporation with Corporate offices at Tower Plaza, Providenciales, Turks & Caicos Islands, BWI. All subscription requests, advertising requests should be directed to CJR, P.O. Box 100858, Ft. Lauderdale, FL 33310 (call 305/771-0505 between 9AM and 4PM weekdays). An additional editorial office is maintained in Tulsa, Oklahoma (P.O. Box D, Claremore, Ok. 74017; telephone 918/342-1911) where Larry James may be reached. Subscription price is \$35 per year, AI Rmail, within USA, Canada and Mexico; in US funds only. Elsewhere \$45 per year in US funds only. Sample copy available for \$5 in US funds. Material contained herein is considered confidential in nature and is for the study and use of TVRO dealers, distributors and OEMs only. Photocopying or extracting contents is prohibited without permission; copyright © by CJR Limited 1983/1984.

NEW PRODUCTS/ SERVICES/ APPOINTMENTS

ANTENNAS

Communications Unlimited (919/473-2430; Rt. 1, Box 781, Manteo, NC 27954) announces 10 and 13 foot 'Sea Breeze' line of innovative antennas combining fiberglass structure with open wire mesh reflector surface. Light weight (100 pounds), low wind resistance, assembled 'trailering' and roof or ground mounts are featured. Limited dealer territories being established (contact Reg Dudley).



ROOF MOUNTED 'Sea Breeze' fiberglass and mesh structural dish

Kaul-Tronics, Inc. (608/583-4833; Route 1, Box 292, Lone Rock, WI. 53556) has signed an agreement to supply 7.5' stainless steel, pressed antennas to National Microtech. The antennas are non-corrosive, hydraulically pressed (contact John Kaul).

Peterson Products Corporation (312/678-0800; 4848 N. River Rd., Schiller Park, IL. 60176) is a 60 year old Chicago based firm with 60,000 square feet of production capability offering to manufacture satellite antennas for large distributors and OEMs. Interested parties should contact Robert E. Herdegen.

Vidare Manufacturing, Inc. (501/327-6591; P.O. Box 1856, Conway, AR. 72032) has expanded production by adding plants in **Austin, Tx.** and **Phoenix, Az.** Total capacity of the new plants will add 60% to

NOTICE TO READERS:

CJR is provided without charge to Dealer Members of SPACE, the national trade association for the home TVRO industry in the United States. This contribution to the SPACE Dealer Program is made by CJR Limited in recognition that a strong national dealer base is essential to the continued growth of the TVRO industry. CJR is published as the mid-month companion to CSD (Coop's Satellite Digest) and is available to non-dealer-members of SPACE for a nominal subscription fee; see fine print on the bottom of page one, here.

Original Equipment Manufacturers (OEMs) are encouraged to submit new product releases for inclusion here in CJR to both of the CJR editorial offices: **Carol Graba, CJR**, P.O. Box 100858, Fort Lauderdale, FL 33310, and, **Larry James, CJR**, P.O. Box D, Claremore, Ok. 74017.

the production ability of Vidare within six months; double that capacity within 12 months. The company has also announced a new print/radio/television marketing program to assist dealers in retailing the products (contact Don Avra).

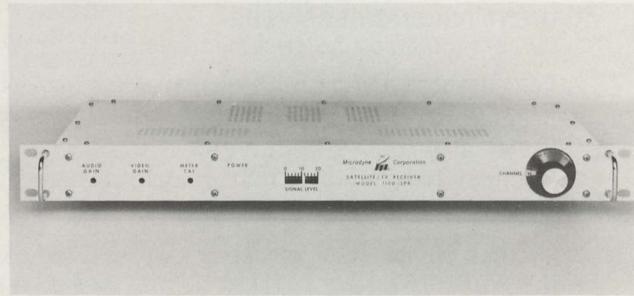
MOUNTS

South River Metal Products Co., Inc. (201/566-7087; P.O. Box 394, Matawan, NJ 07747) is marketing a (new) line of 'economy mounts' for TVRO dishes up to 10' in diameter. Both pole and stand-alone types are available, covering such dishes as the 4 petal (10') Vidare, 8 petal (old style) Prodelin, 3 meter Harris Delta Gain, and the current 3 meter 8 petal Prodelin. A 'universal' mount is also offered. New heavy duty mounts for 3.7 meter Prodelin, 12 foot (6 petal) Channel Master and other dishes in sizes up to 13 feet are offered (contact Martin L. Roth).

RECEIVERS

Electronic Rainbow, Inc. (317/291-7262; 6254 LaPas Trail, Indianapolis, IN. 46268) offering a pair of TVRO 'receiver kits'; Kit #1 is complete to colorful construction manual (\$395) and kit #2 offers scaled down version (\$129). An instruction manual is available alone (\$25), price refundable if either kit is later ordered.

Microdyne Corporation (904/687-4633; P.O. Box 7213, Ocala, FL. 32672) offering new 'low cost' (high performance) professional grade receiver; model 1100 LPR. Unit has single conversion circuit, frequency synthesized tuning (accurate to 0.001%), 36 MHz wide IF demodulator and SAW filter IF. Unit is rack mounting, 1.75" tall, and uses 20 watts of AC power (contact Earl Currier).



MICRODYNE 1100 LPR TVRO receiver

SERVICES

National Microtech (1-800/647-6144, or, 416/389-1381 in Canada; P.O. Drawer E, Grenada, MS. 38901) announces new 'Apollo Representative Program' to dealers and sales reps interested in carrying the NM 'Apollo' line of equipment or representing it. Sales advantages cited included 3-year warranty, national repair center, regional warehousing (Dallas, Granada, Hamilton [Ontario], North Carolina), special components division, toll-free order processing, wide variety of system packages, training schools, marketing support, consumer advertising and 'Microcable' system planning and hardware. For information, contact Carol Sheldon.

BIZNET, the satellite television arm of the U.S. Chamber of Commerce (202/463-5808; 1615 H Street NW, Washington, DC 20062) offers monthly pre-program guide to BizNet service (F4, TR15) as 'selling tool' for potential local Chambers interested in having the BizNet service available to themselves. An innovative downlinking program is in the works at BizNet and dealers would do well to get onto the BizNet mailing list for an opportunity to participate.

AT DEADLINE: 11th Hour Reports

MARKETING:

PROGRESS

STTI's Nashville gathering, held over the extended Labor Day weekend period (September 5 to 7) from all accounts drew more exhibitors, and more enthusiasm from all levels of industry participants than any previous show in the industry; apparently including the fabled STTI Las Vegas show this past March.

STTI needed the positive shot in the arm, facing a forthcoming battle with SPACE because of conflicting show dates in Las Vegas this coming March, and a less than enthusiastic show this past June in Minneapolis.

Nashville was sold out of booth space early; the combination of an 'industry high' coming off the Las Vegas show this past March, and what initially seemed like too few booths to handle a 'national show.' STTI was able just 30 days prior to the Nashville show to arrange for additional booth space in Nashville; something that depended totally upon the completion of a major construction project at the Opryland Hotel. When the additional booths were offered, they were promptly snapped up by those on a 'stand-by' list plus some others just coming into the show business routine. The total of booths was 309, representing nearly 150 separate firms (many firms took two or more booth 'spaces'). Noteworthy were some of the names who were appearing at Nashville; **Scientific Atlanta**, for example. S/A has not appeared at a 'home TVRO show' since the first show ever held, back in August of 1979.

CJR's assessment of the show is as follows:

- 1) The facility represented the **best facility** for any show to date. The surroundings offered ample 'space' for the show goers and exhibitors alike.
- 2) The **enthusiasm** of those attending was on a par with the Las Vegas show. Exhibitors report good to above average buying enthusiasm and product interest. The serious nature of those attending was excellent, indicated by the number of two and three piece business suits on the exhibit hall floor.
- 3) Overall satellite TV **picture quality was good to excellent**, as always a function of booth/antenna location and the presence of those annoying single conversion receiver local oscillator radiation sources that pop up whenever a large quantity of antennas and receivers jam closely together at a show.
- 4) The program indicated that STTI has become **more responsive to the pressing needs** for seminar sessions that teach rather than hype; of the 28 sessions listed in the official program, 15 were technical in nature, 9 were marketing oriented while 6 would be judged 'general' in nature.

Some of the subjects chosen reflect the growing concern on the part of dealers that they **must have more adequate technical data** to work with if they are to survive in an increasingly competitive marketplace. Gnawing problems that beset all dealers addressed by people such as **Lewis Larsen** ("Antenna Windloads And Safety"), **Joel Leipzig** ("Basics of Polar Mount Alignment and Antenna Installation") and **Lowell F. Smith** ("Actuator Problems In The Field — Let's Find The Answers!") were indicative of an increased awareness that **all** shows must do more than satisfy the 'flea-market' syndrome if they are to be productive for the industry.

Attendance. Only STTI knows for sure and their official 'count' was not available as CJR went to press. The impressions are that the show was attended as well as, or better than, the Las Vegas show. It is difficult, almost impossible, to properly estimate the size of a crowd at an industry show anymore since there is a constant coming and going of attendees and exhibition personnel (the later numbered more than 800 alone!).

Comments. "Best show ever held by the industry." "Very big crowds, people are here to buy and the number of large new retailers entering the field fascinates me." "They didn't bill this as a 'back-to-

STTI NASHVILLE REPORT

basics' show but the change in program style indicates to me that someone at STTI has been listening to the complaints of exhibitors and attendees alike."

The amount of literature available at the show reached the 'overwhelming' stage; a person bent on picking up one-each of everything available would have been in the drayage business just getting it all back home. New publications surfaced on every counter; a new general purpose TVRO user publication (**DISH** "... the first truly entertaining magazine for the satellite television viewer . . ."), a new dealer oriented slick publication from the folks at SATguide (**Satellite Dealer**), **Satellite TV Opportunities Magazine** ("... the marketing techniques magazine for satellite TV professionals . . .") and numerous special 'show-editions' from the people at **SATguide**, **Channel Guide** and **Satellite TV Week** (bringing out their new 'eastern edition' for folks living in the eastern time zone region). If the publications alone were carried home, the average show attendee would have nearly five pounds of paper!

"**Slick and very professional**" was the way one new-to-the-industry retailer with a chain of video outlets described the event. The STTI/SPACE show 'battles' have been in the forefront of the news for several months and most of those who have to function within the industry on a daily basis had reached the 'saturation point' with either the constant bickering back and forth between the two factions, or the increasing pressures brought to industry participants to 'choose sides.' Many level headed OEMs and distributors had apparently reached their own independent decisions that a continuation of the 'show wars' serves no part of the industry, and there was a considerable amount of aisle talk devoted to bringing the two sides to either a peace treaty or the bargaining table. The up-front discussion of the issue may have been brought to a head by an editorial by **Channel Guide's Lloyd Covens** appearing in the Nashville show edition of the publication. Covens used his editorial prerogative to urge the 'removal' of SPACE's General Counsel Rick Brown whom he accused of holding the industry 'hostage,' and he also urged that STTI and SPACE forget all of the past battles and mis-understandings, and come to an agreement to share the responsibilities (and the income) from a 'joint effort' show in Las Vegas this coming March. Coven's urgings comes on the heels of a SPACE decision to go 'head to head' with STTI in Vegas this coming March; a decision welcomed by virtually nobody in the OEM/distributor/dealer sector of the industry.

The next industry wide show is the forthcoming SPACE gathering in Orlando (November 3-5); almost precisely two months after the Nashville show. With the considerable success of the Nashville show, there can be little question that the industry will be expecting no less from the SPACE gathering and will be watching closely the way the Orlando show structures itself, and, attracts crowds who are on hand to not only learn about their business, but to show a buying interest in products.

The STTI Nashville show surprised many, this observer included, for the way the show sponsors were able to bring it all together. STTI has shown that they **can function** in both battlefield and unsettled conditions in the show world, and all of those associated with the STTI effort are to be commended and recognized for the success of the show. It now remains to be seen whether SPACE and the ambitious show schedule they have planned can come up to the same level of achievement. Experience and maturity definitely count for something and STTI showed in Nashville that they have both going for them.

Coop

INSIDER: NASDA POST-MORTEM

Those of you who keep your bifocals relatively clean will recall a note in the **11th HOUR REPORT** of the August CJR reporting that NASDA had ceased operations. CJR based that report upon a letter received by all NASDA members, from NASDA headquarters, stating that "The National Satellite Dealers Association of America will cease operations on August 1, 1983." The letter went on to say that although the group would no longer solicit members, it would continue to serve those on board as long as it had resources to do so, and cease all operations when the funds were exhausted. CJR looked into the history and status of NASDA; this is what we found.

The National Satellite Dealers Association of America was created in Salt Lake City by **Carl Reynolds**. Reynolds has several vested interests in various satellite related firms and felt that, as a group, dealers had no real forum to turn to for assistance toward making their local business a success. The statistics seem to prove that somewhere between 50% and 70% of new dealers are no longer in business after their first year. Contributing to this, according to Reynolds, is the fact that the marketing tools and materials common in other industries have been scarce-to-nonexistent for TVRO dealers. An association of dealers could do much for bringing to them a host of helps that would assist them in getting their business off the ground. NASDA was the result. The goal of NASDA was to launch an ambitious program of sales aids (both their own and those from manufacturers), consumer shows, marketing tools, and other helps to the dealers, to be followed by possible assistance in the areas of financing and insurance.

The most unique goal of NASDA was the idea of conducting up to **24 Consumer Shows** per year. The first was scheduled to take place this month in Salt Lake City. Only dealers would be invited to exhibit at these 'end user oriented' gatherings. Distributors and manufacturers would be on hand (if at all) only to assist the dealers and to provide backup and answer questions. Emphasis was to be placed on flooding the media in the local area with the goal of producing the huge crowds (100,000 and up) that Salt Lake City's Expo Mart has attracted at previous similar gatherings. Although exhibitors would be limited to retailers only, included would be those marketing home video components, home computers, telephones, stereo equipment and related home electronics. To say that the undertaking of producing 24 shows of this magnitude each year, from coast to coast, is a gigantic task is an understatement. The list of targeted sites for these shows includes just about every US city with facilities large enough to handle the crowds and other requirements. Booths were to cost somewhere in the \$750.00 range, with show arrangements fairly typical to most large exhibitions. The goal for the shows seem to be twofold, after studying the marketing plan and investment portfolio. First of course, if successful the show would provide a tremendous opportunity for exposure to the public to the dealer for his products and his services. Second, the booth sales and admission receipts would provide large scale profits to the promoters (nothing wrong with that if they do their job). Did we mention admission fees? Consumers were to pay admission (in the \$2.00 to \$4.00 range) to see all there is available in home electronics. It should go without saying that whether any one organization

could handle the planning and execution of shows this large, scattered all across the US, is a question in itself. Remember the plan was two per month, month after month. Many cities or groups having one somewhat similar (at least in size) once a year find it a handful to do successfully. There is no doubt though, that dealers would welcome the idea of close to 100,000 potential customers, **from his local area**, parading by their booth and becoming aware of his presence in the community and his products. Many if not most dealers lack the budget to command the attention of more than a small percentage of their potential market.

Reynolds enlisted **Don Adamson** and **Katherine Parker** as his primary team members. Added to these were some key members of this industry as executive and advisory committees. Don Adamson is known by many as an able leader who has been very successful in several fields, not the least being Satellite TV Specialists, a leading distributor of TVRO equipment. Katherine Parker was a recent entry into this field and operated Foxy Lady, a mail order source for satellite equipment, and Total Vue, a TVRO distributor.

So NASDA was formed and set about to solicit members and begin to lay the plans for those projects outlined in its goals. Somewhere along here things began to go wrong. Although the creators of NASDA were convinced that the need was still there, problems began to pop up. All new ventures have problems, some worse than others, and no one at NASDA wants to point a finger at any one culprit or 'goat' but a few details seem to indicate that Katherine Parker's difficulties with Foxy Lady and other businesses did not help the credibility of NASDA. CJR after many attempts from several angles was unable to locate or talk with Ms. Parker. We did find that both Foxy Lady and Total Vue are no longer in operation, and apparently they have left a "bloody trail of creditors." Complaints have been received by **Coop's Satellite Digest** and other publications concerning customers being 'less than satisfied' or downright 'up the creek' with orders placed with Foxy Lady. Suppliers also have some complaints here too. To date, repeated attempts to obtain satisfaction have met with failure, and at press time no one can reach Ms. Parker or anyone related with these firms. These are the kinds of problems no new "non-profit organization" needs to build confidence among its members. Although this was not the only problem NASDA faced, it would seem that since Ms. Parker was a key team member, NASDA was doomed to have a difficult task ahead. Evidently some measure of real or perceived opposition from SPACE had some effect upon NASDA's prospects for success. Mention was made in the letter to members concerning "pressures applied on members of the SPACE board as well as the SPACE attitude about there not being a need for a second association in the satellite industry" being very detrimental to the drive for NASDA members. Carl Reynolds, considering the problems at hand, and without the assistance he needed to make the program fly, and lacking overwhelming response from the industry, decided that it was time to close up shop. It was along about here that Reynolds (a man not accustomed to failure) found another problem; NASDA wouldn't die.

After speaking at the Minneapolis STTI show, Reynolds had found that a small but respectable number of dealers were responding to his ideas, and acting upon his suggestions to seek more marketing tools and sales aids from distributors and manufacturers. Another interesting thing happened . . . after all NASDA members had received the letter announcing the demise of NASDA, only one dealer out of approximately 100 who had paid to date, requested a refund of his membership fee. Reynolds was now more sure than ever that nothing had changed, the need for dealer assistance was still there, and he decided to change course and keep NASDA alive.

CJR found Reynolds willing to freely discuss every aspect of NASDA, both the problems as well as the goals and plans. Other key leaders and support personnel such as Don Adamson, George Mitchell, and others were found to be open and candid concerning the origin, goals, and plans for the program. All seemed to be convinced that in spite of the problems, the need for dealer programs and assistance is greater, and they are behind the plan to "resurrect NASDA" and its programs.

According to Reynolds the plans for the rebirth of NASDA include a time of 'low key' planning and reorganization, including bringing some new talent into the operation. A letter to present members was sched-

STARDUSTER

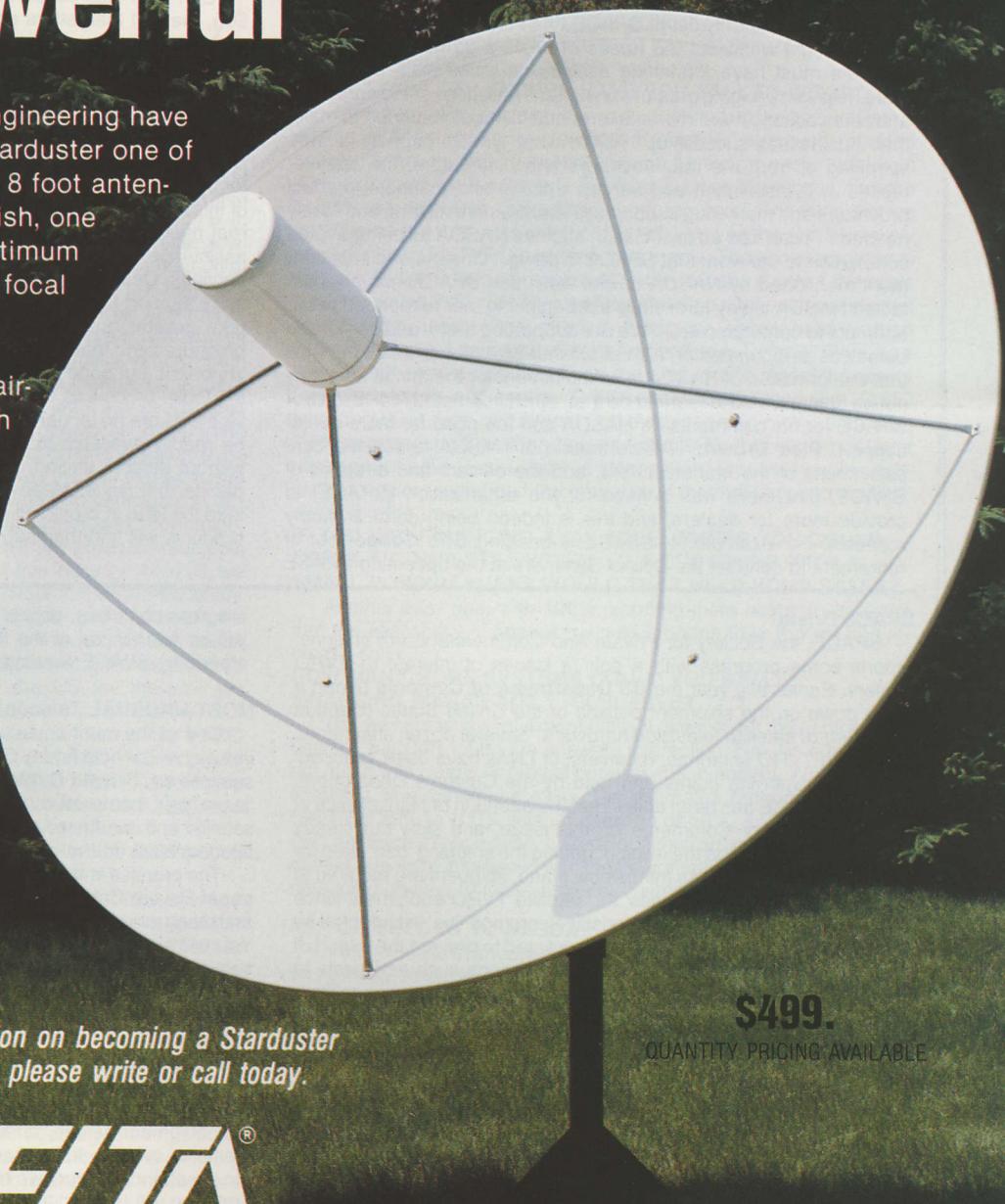


Compact, Complete and Powerful

Common sense and good engineering have been combined to make the Starduster one of the most powerful and popular 8 foot antennas available today. Its deep dish, one piece construction provides optimum reception by utilizing a shorter focal point, thus reducing terrestrial interference.

Constructed of high quality aircraft-type aluminum, its smooth satin finish will deliver crystal clear reception from all orbiting satellites, along with many audio services.

The Starduster is mounted on a 360° swivel polar-mount which is constructed of heavy gauge steel. The polarmount is coated with a ceramic-type paint for years of maintenance-free service.



\$499.

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For more information on becoming a Starduster distributor or dealer, please write or call today.

uled for release toward the latter part of August, with a new start toward soliciting new members to be kicked off September 1st.

The natural question that leaps forward here is: Aren't these programs and goals being addressed by SPACE? Contrary to what you might think, we found all those involved in any way with NASDA to be SPACE backers. **Carl Reynolds: I believe in and support SPACE 150%.** "I am a SPACE member and envision every dealer that joins NASDA also joining SPACE!" From the beginning, according to Reynolds, NASDA has donated a small portion of the membership fee from **every member** to the work that SPACE is doing. In every (separate) interview with the various leaders in the NASDA effort **CJR** found all to be SPACE members and supporters. Also we found that although all were behind the SPACE organization, all felt that many dealer needs were just not being met by SPACE. "It would seem that after studying the track record and present goals published by SPACE, that programs for insuring dealer success is about seventh on the priority list at SPACE." "SPACE is doing a good job with the legal work, but the needs of dealers go far beyond that." "Dealers must have marketing assistance, sales aids, brochures, more help with bringing greater consumer awareness of their products and services, and more manufacturer and distributor support to make their businesses successful." Asked what type of support he was speaking of from the manufacturers and distributors, the speaker replied . . . "installation and service training and manuals, product brochures and marketing support are virtually nonexistent, and sorely needed." "I can see an association such as NASDA as being a good companion to the work that SPACE is doing." One major disappointment mentioned by NASDA official was "that SPACE has not contacted NASDA in any form since the beginning, nor responded to our attempts to communicate." "We are supporting them, and do not see ourselves as a competitor. I am afraid that SPACE has taken the view that the formation of NASDA is an indictment for the things they may not be doing, we don't feel it to be that." **CJR** contacted Rick Brown of SPACE for his comments on NASDA and the need for more dealer support. **Rick Brown:** "The formation of NASDA raised the consciousness of the manufacturers, and the officers and directors of SPACE, that there was a need for the organization (SPACE) to provide more for dealers, and this is indeed being done, in many respects. For example: 1. SPACE is bringing **Bob Cooper** out of retirement to conduct the Dealer Seminars at the upcoming SPACE

trade show in Orlando. 2. The publishers of the **Cooper/James Report** are making subscriptions available to SPACE dealer members. 3. SPACE has recently distributed brochures to SPACE dealers and others listing all SPACE publications, and making them available at quantity and group discounts. 4. SPACE is planning to institute a new training program for dealers on teleconferencing downlinks, this program is scheduled to be ready for release in Las Vegas (Mar. '84). 5. SPACE is planning to provide some kind of insurance package for dealers and consumers." Brown went on to say "We believe that dealers are the backbone of the industry and their participation in SPACE will undoubtedly be a key to our success with respect to obtaining viewing rights in the battles in Congress. Unfortunately SPACE merely relied on the dealer to help the industry in its congressional battles, now the organization will focus, to a greater extent, on giving something back to the dealers."

Carl Reynolds stated that recent support for the program (NASDA), the fact that letters and new interest in various forms is being received weekly, and his belief that the underlying need for dealer support is evident has caused him to continue his efforts. "Look for a rebirth of excitement, enthusiasm, and drive as NASDA gets back on track and proceeds towards its goals."

Is there a need for another organization in our industry, or is SPACE now providing these services (or will their new plans provide for them)? We'll leave that for you to decide. There is no doubt that all of this has brought one fact into sharp focus, and that is that there is a real need for greater dealer support in the area of programs and assistance toward the successful marketing of their products and services. Dealers are becoming more vocal in their insistence upon more support from manufacturers and distributors ("they push me to take greater quantities each month but they won't even provide brochures and materials to help me sell them"). Quality equipment is important, but good installation manuals, training programs, marketing tools, brochures and product literature, and other sales and service aids are no longer luxuries. Many dealers feel that these will not be readily available to those marketing systems at the retail level without dealers uniting under some banner. Dealers will ultimately decide that issue. Meanwhile **CJR** is sure that manufacturers who take the lead in providing many of these things for those selling their products will find themselves very successful.

SPACE Briefs

SPACE, the Society for Private And Commercial Earth stations, reports some progress with a pair of issues of interest to TVRO dealers. Earlier this year the **US Department of Customs** began a crack down on the shipment outside of the United States (Canada excepted) of satellite television hardware. Several dozen shipments, containing TVRO antennas, receivers, or LNAs have been 'grabbed' at various exporting points and held by the Customs Department. Recently SPACE has been able to get the attention of high officials at the Department of Commerce on this issue, and slow but steady progress is reported on the issue of getting the shipping 'ban' lifted for satellite TV equipment. As things now stand, shippers are required to obtain **special** 'export licenses' for satellite TVRO equipment since such equipment appears on a 'sensitive commodities' list adopted by the Department. The 'list' was initially created to prevent the export of equipment which might somehow assist nations such as Russia to leap-frog their own technology in areas which could increase military communication system effectiveness. TVRO gear got caught up in the large net set to snare such exports, even though it is not considered 'high tech' technology.

In another area, SPACE has been holding technical and marketing sessions with the people who operate the **BIZ-NET** service on F4's TR15. The object of this program is to create a situation where SPACE dealer members will be able to work through their local Chamber of Commerce offices to supply specialized 'downlinking' services for national and international gatherings supported by or funded by the Chamber. For the first time, recently, a supplier to the (home/private) TVRO industry was placed on the 'accepted equipment list' by BIZ-NET, an 'honor' which until then was held only by the larger firms supplying very expensive downlink hardware. If the present rate of

progress continues, details of the plan, for SPACE dealer members, will be announced at the forthcoming Orlando, Florida show being staged by SPACE November 3-5.

MOST UNUSUAL Teleconference

One of the most unusual learning seminars in the history of the industry will be held Friday **October 7th** from 11 AM (ET) to 5:30 PM; a seminar on '**Private Cable Opportunities**' Only you don't need to 'leave your home area' to attend; this one will be transmitted via satellite and conducted on an 'inter-active' basis via a coast-to-coast telephone link to the central studios in San Francisco, California.

The premise is this; a group of experts (Taylor Howard, Pat Weisner of Private Cable Magazine, Terry Easton, Guy Davis of InterSat and many more) will hold panel and single seminar teaching sessions. You will sign up for the course and attend at the nearest downlink seminar center (more than 100 planned, coast to coast, and in the Caribbean). You will receive a comprehensive 'course study book' and be taught about what Private Cable is (and is not), how it is regulated and what the legal issues are, how the satellite receiving equipment functions, what the programming available consists of, how a private cable system is financed, how the service is marketed to the user-customers. The people putting this on are inviting both installers/equipment sellers, and, tens of thousands of potential buyers (complex owners, trailer park operators, motel and hotel operators, etc.) to attend. In your own regional seminar center you will be taught, and, you will be introduced to **potential** Private Cable customers.

The satellite to be used, and the transponder, and the 'security system' to be employed are being kept under wraps until just hours before the event. For more information, contact **S.F.P. Designs, 369 Redwood Avenue, Corte Madera, Ca. 94925.**

INDUSTRY: QUARTERLY TVRO DEALER PULSE

ON THE FRONT LINES

Surveying dealers across the country can be a very enlightening experience. **CJR** set out to find the real successes and problems, not in the minds of the associations, OEM's, or editors, but from those who are in the business of daily selling and installing TVRO systems. A little background to preface this report, and to explain our methods is in order. **CJR** randomly selected dealers across the country to interview, without foreknowledge of their size, volume, affiliations, or method of operation. Dealers were contacted from all areas of the US, both urban and rural, and (as it turned out) large and small in terms of volume. **CJR** plans to seriously consider conducting a similar survey four times per year as a periodic 'pulse of the industry' report. Each dealer was asked the same questions, and was informed that there would be no identification of the individuals or firms surveyed in this report. No names? Right. We wanted free communication and frank and honest answers to compile an accurate report on the status of the industry at the dealer level. Very gratifying was the fact that we found 100% of those dealers contacted not only willing to participate in this survey, but also eager to offer more than the requested information, and their considered thoughts and ideas on many areas and subjects considered vital to the continued growth of this industry. All in all, we found the dealers surveyed to be solid businessmen, who knew where they were and where they were going, up to date on the state of their operation, many with years of experience in this and related fields. This report is not intended to be representative of a comprehensive survey of the majority of the dealers in the US (by the time we completed something like that the information would be history), but we feel the dealers surveyed represent the mainstream of the TVRO dealers at this stage of the industry. The statistics reported were rounded off to the 'nearest whole ten number' to avoid unnecessary complication. OK, let's visit the 'front lines' and take a look, 'up close and personal,' at how it's all working at the dealer level.

HOW MANY COMPLETE TVRO SYSTEMS DID YOU INSTALL DURING JUNE?

Answers here ranged from '0' to a high of 18 with the average being **NINE** systems. The economy didn't seem to be a real factor in the sale and installation of systems. Geographical location (both in areas of the US and urban vs rural) and other considerations were more of a factor. Rural areas, particularly, continue to have low months when the farmers are in the field and pick up again when the crops are in. Those areas where the unusual summer heat was beginning to be a factor noticed a dip in sales and interest.

HOW MANY COMPLETE TVRO SYSTEMS DID YOU INSTALL DURING JULY?

Here we found a range from '0' (different dealer) to a high of 16 with the average being again **NINE** systems. We found June and July virtually twin months, with the market conditions and sales results very similar.

HOW MANY DO YOU THINK YOU WILL INSTALL DURING AUGUST?

The August figures were based on systems sold and installed to date, sold but not yet installed, and conservative estimates of their

prospects of completing the sales in progress and new business. The installations projected ranged from 3 to 20 with an average of **TEN**. All dealers (based on almost as many reasons as dealers) projected a strong finish and continuous sales increases.

ARE THESE SYSTEMS BEING SOLD FOR CASH (FULL PAYMENT BY THE CUSTOMER) OR ARE THEY BEING SOLD WITH SOME TYPE OF FINANCING?

We don't think the figures here will surprise many. Financing TVRO systems remains a problem in virtually all areas. Although 60% of those surveyed reported marketing systems with some sort of financing on occasion (from 'only one' system to 30% of one dealer's total sales), the results were that greater than **90%** of all the systems being installed are being sold for cash, with full payment by customer upon completion.

IF YOU DO NOT HAVE A FINANCING PLAN AVAILABLE, HAVE YOU TRIED TO OBTAIN FINANCING?

This was an easy one, with 100% of those surveyed reporting they have attempted to obtain some type of financing for their customers. What type and with what results . . . read on.

WHAT TYPES OF LENDERS HAVE YOU TALKED WITH?

Here the responses ran the gamut, including just about every source of financing known to modern man. All surveyed reported seeking financing arrangements through banks (of every type) with 40% extending their search to Savings & Loan institutions, finance companies, and other various and sundry sources. One thing that we found to be the rule . . . Banks (especially) and all the rest still rarely consider loans for TVRO's on their own merits. Those having minimal success finding financing report that on those loans granted, the basis was more often than not either the long standing relationship and good record of the dealer (most often) or the buyer. Those loans granted where the dealer's influence with the lender was not a factor were, as a rule, based almost exclusively on the customer's record or assets (signature loan), **not on the TVRO value**. **CJR** found that TVRO financing is, at best, still almost non-existent on its own merits, with lenders remaining less than knowledgeable on this equipment and ultra conservative. Some colorful stories were repeated on this subject, as dealers recounted the many ways that bankers can 'politely' show you the door.

IF YOU HAD FINANCING AVAILABLE, WHERE YOU COULD OFFER A COMPLETE SYSTEM TO A CUSTOMER WITH A SMALL DOWNPAYMENT WOULD THAT HELP YOUR SALES?

Another easy one, with 100% reporting there being no question that the availability of financing would broaden their market and increase sales.

HOW MANY MORE SYSTEMS COULD YOU SELL IF FINANCING WAS READILY AVAILABLE?

This was somewhat of a more difficult question for the participating dealers, but **CJR** found the answers interesting. No, the dealers did not make wild claims or project unbelievable numbers. While all said financing would increase sales, the estimates ranged from an increase of 20% to 100% with an **average of 50%**. Again, these numbers are merely speculation, based upon their knowledge of their local market. We were impressed with the thoughtful and logical **individual** reasoning leading to these projected numbers.

DID YOU BELONG TO NASDA?

Of those dealers randomly selected for this survey we did not find any that had joined. Note: For those in the dark about **NASDA** (National Association of Satellite Dealers of America) see the **INSIDER** report in this issue.

IF YOU DID, WHAT MADE YOU JOIN?

Moot point based on the above.

IF YOU DID NOT, WHY HADN'T YOU JOINED (NASDA)?

Various responses to this follow-up question, and **CJR** has placed the many different answers into the following categories they most nearly (or exactly) fit. 20% said they had not heard of the association, 30% said it sounded like "just another blue sky proposition (although each admitted that they had not done any 'in depth' research on it)," 40% had not joined because they thought **SPACE was, should be**, or hopefully **would be** meeting these needs, and felt that the industry is in need of more unity (in common goals) and less fragmentation. Some in this last category added that there had been some influence

(negative) from SPACE members (not necessarily to be interpreted as the SPACE leadership). Another 10% said there was no reason but procrastination (to make a decision) due to the press of business.

DO YOU BELONG TO SPACE AS A DEALER MEMBER?

We won't keep you in suspense here, it was split down the middle, 50% were SPACE members and 50% were not. That's not, as Paul Harvey would say 'the rest (or all) of the story.' We found that those who are SPACE dealers were usually very emphatic about it, and even exhibited a measure of pride in their membership. That's not to be translated as 'in total agreement' with the program (more on this later), but felt that SPACE was the best vehicle 'at this time' for our common good. On the flip side of the coin (non-SPACE dealers), we didn't find any real opposition to SPACE or any 'soap box speeches' as to why they were not members. **NOTE:** This is not to imply that half of the dealers nationwide are members of SPACE, merely that 50% of this sample happened to be.

WHAT ARE YOUR FEELINGS ABOUT THE WORK THAT SPACE IS DOING?

Now a guy could open up Pandora's box going around asking questions like this (not to mention running up a huge phone bill listening to the responses). Most (70%) thought SPACE was doing good work in the area of legislation (preventing detrimental legislation). Another 20% criticized the seeming inability of SPACE to receive programming rights for private TVRO's (yes Margaret, customers know about the possibility of scrambling on the horizon) therefore withholding approval of SPACE's track record. 10% didn't feel there is enough clear (and regular) communication from SPACE on their activities for a judgement. Those believing SPACE to be doing good work with legislation and other like matters had other comments, almost before we could ask the next question.

WHAT SHOULD SPACE BE DOING TO DO A BETTER JOB?

No 'wild-eyed' statements or unreasonable demands (surprised?), although every dealer, without hesitation, had no trouble fielding this one. The winner (the envelope please) was, with 60% offering different wording but the same message, that SPACE needs to be more **dealer oriented**. Many feel that although the dealer is a most ('the most') important link in the equipment distribution chain, that SPACE is less than responsive to dealer needs. This is not to say (and they made it clear) that SPACE does not respond to phone and mail requests from dealers for specific information, (SPACE **does**, very well, according to those surveyed). Dealers want SPACE to remember just who it is that is selling all this sophisticated equipment, and to form more of their total strategy, approach to problems, and overall direction with dealers in mind. Translate this to say that the average dealer feels that dealers have much less input and weight with SPACE than the manufacturers and other 'heavies' in the industry. Many want to see more two-way communication and the opportunity for input on SPACE programs and directions from the dealer level. 20% want to see more information on SPACE activities, on a routine and regular basis (but realizing that SPACE has a limited budget). 30% want to see more tangible benefits from their SPACE membership (although most were not sure just what). 30% mentioned that they were in agreement that SPACE leaders wear too many hats and welcome the recent SPACE board decision to hire a CEO to handle the administrative duties. 10% had no suggestions.

OUT OF THE FOLLOWING CATEGORIES, WHICH EQUIPMENT IS GIVING YOU THE BIGGEST DELIVERY PROBLEMS RIGHT NOW?

The categories were: Antennas, Feeds, LNA's, Motor Drives, Receivers, and Modulators. No confusion here, and no problems either. 100% of the dealers reported they were having no problems with equipment supply or shipment. Occasional comments were heard about a particular brand (for a brief period), or a late shipment, but the consensus seems to be that all components are in good supply. Comments were made about most suppliers getting much tighter with their payment procedures (requiring payment up front in certified funds without exception) but "if you have the money there is no equipment shortage."

OUT OF THE FOLLOWING, WHICH CATEGORY OF EQUIPMENT IS GIVING YOU THE BIGGEST MAINTENANCE PROBLEMS RIGHT NOW?

The categories were the same as in the previous question. To say we found a clear-cut trend here is an understatement. 70% of the dealers surveyed reported **emphatically** that their biggest maintenance headache is related to antenna **motor drive systems**. CJR did not inquire about specific brands in any part of this survey, but this was one area where many were mentioned. Finding the best/worst was not our purpose, nor would this sampling be extensive enough to make that determination. We did find that all brands mentioned (which just about covers all available) took their lumps. It seems clear at this stage, when many (if not most) of the various components are very reliable, we still "haven't totally arrived" in the motor drive department. We are sure that those manufacturing motor drives will claim that many of these problems are related to poor installation, or other factors, but that may be part of the problem. Until motor drives are readily available that can handle everything from the weather to long line runs, and are simple and straightforward to install, the problems will continue. **LNA's** came in second with 20% reporting them as their chief problem, and 10% responded that **RECEIVERS** would head their list.

WHEN YOU HAVE TO SEND SOMETHING BACK TO THE FACTORY FOR REPAIR, WHICH OF THE FOLLOWING COMPONENTS TAKE THE LONGEST TIME TO BE REPAIRED?

The categories were: Feeds (polarotors, etc.), LNA's, Receivers, Modulators. Mixed responses to this question produced the following results. 50% named LNA's as taking the longest time for repair turnaround, 30% reported that all components take about the same amount of time, 10% reported that receivers take the longest, and 10% named motor drives (even though they were not one of the categories). CJR found that no matter the category, the turn-around time is generally from **5 to 8 weeks**, although there are a few (rare) exceptions.

ARE YOU PLANNING TO ATTEND THE SPACE SHOW IN ORLANDO IN NOVEMBER?

The numbers shifted a little here with 50% responding **YES** and 50% responding **NO**. Those surveyed listed the same reasons in general as above (geographical, budget, time, etc.) with their being/not being SPACE members being somewhat of a modifying factor. 80% of the 50% planning to attend the SPACE show were SPACE members. Again the numbers were higher in the southeast.

WRAP UP

When going down to the front lines with dealers, who can't 'forget' to return calls, or overlook answering tough letters (their customers will just walk right in if they do), you find really quickly what works and what doesn't. Another thing you'll find is that you don't just ask your list of questions and hang up without giving them time to let you know what is on their mind. Here is a few of them. Many of the dealers we 'visited' are show veterans, and have very definite ideas of what they expect from a trade show. This topic was offered most often. Along with others in the industry they are saying that there are too many shows at present to attempt to attend all of them (even if their budget would allow it their schedule won't). They are also getting more vocal as to their desires when they attend. More than a few feel strongly that upcoming shows must return to the basics, offer some **real instruction**, be limited to bonafide people in **this industry only**, and closed to the public. The trend to lower admission fees is not exciting them, quite the contrary. More than once we heard that the lower admission cost only brings in their (**retail**) customers in the area, and they lose a possible sale to an exhibiting distributor (or worse to a manufacturer selling direct), or at best makes the future sale more difficult (and less profitable) when the 'man in the street' knows the wholesale pricing. Another very prevalent comment was that the dealers would rather pay higher admission fees if necessary (as in the past) and experience more than just a "sideshow" or "flea market" (their words). Seminars and presentations should be more than just some 'marketing type' pushing his product ("you can get that at the booths"). Dealers want straightforward seminars dealing with subjects that have real applications in problem solving and sales production back at home. Suggestions we heard were not new (installation tips, maintenance techniques, new approaches to marketing, etc.) except their application to new products and techniques. One dealer stated "the shows and seminars along with the manuals available taught me this business, I

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PIONEER MEMBER OF
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don't know how the new dealers get started now." Another topic was the need for more advertising support from the OEM's directed to the **consumer**. "Virtually all OEM advertising is directed toward the distributor and dealer . . . consumer advertising to raise the product awareness of TVRO's and their possibilities is sorely needed to bring them in

to our showrooms." The dealers that **CJR** contacted this time around were not the 'backyard mechanic' by a long shot. Most have a full scale operation to market and install TVRO's, have a good grasp on their market, and know what the consumer wants, as well as what works and what doesn't. Too many times their voice is not heard. Pity.

SERVICE: TROUBLESHOOTING 2 PLUS POLAROTOR

STARTING Over

Last month we discovered that the first intelligent thing to do with a mis-behaving TVRO terminal is to be certain that all of the required portions of the systems have power. We walked through those test points and the logic behind the various powered segments and arrived at the conclusion that all of the power seemed to be where it should be, and, that our cables connecting the indoor demodulator, the outdoor down converter plus LNA also seemed to be intact. And still, we had no pictures on the screen.

So what do we do next?

Now we are headed for the down converter. This one is tougher to diagnose. Some of the receiver manufacturers sell you '**matched**' down converters and receivers. Some sell you '**matched systems**'; they **tell you** that THIS receiver has to go with THIS down converter which in turn has to go with THIS low noise amplifier. Perhaps. But to check out the down converter (i.e. isolate it as a trouble spot) we can at least take an identical down converter for the same product (NEVER a down converter for **another** receiver product!) and do a substitution. Turn off the power at the receiver first; no point in blowing a fuse by allowing the power carrying wire(s) to dangle and touch a ground, shorting out.

If you do this, turn the power back on, and have people on the screen, you've found your trouble. The performance may well not be optimized (maybe the receiver manufacturer really DID match the down converter to the receiver) so before you get done you'll have to replace the demodulator/receiver also with one that matches the newly installed down converter.

Or, to drag our problem out, you do this and there is still nothing on the screen. Well, you weren't crazy about working outside anyhow. The lady of the house has two fantastic daughters sitting inside waiting for MTV to snap back on and you'd rather be in there helping them find MTV anyhow. So put everything back the way you found it, take a deep breath, and after wiping off your feet on the doormat, head inside.

Which brings us down to the demodulator/receiver. And the two daughters. Now your intuition might tell you that the fastest way to finish this half day project is to go ahead and do a quick substitution of the demodulator. On the other hand, the longer you take finding the problem the more 'conversation' you can have with the girls.

There is a chance that the demodulator is good. Yes, after all of this, it might be good. So before you dig into it, which you probably are not qualified to try fixing anyhow, why not do the smart thing; **check for a bad modulator**.

Remember that a TVRO receiver often has a built-in modulator. That's the part of the receiver where the 'real video' and the 'real audio'

are re-married into a TV signal that you can tune in on your normal American television set.

Now not all receivers out there have a 'video output' and an 'audio output', but the majority do have these output jacks. The best thing for you to do, having gotten this far, is to NOT take the top back off the demodulator; yet. Rather, go back to your tool kit and locate that small little modulator you carry around.

Connect it to the TVRO receiver with some jumper cords from Radio Shack and then plug the output of the modulator into the TV set. Any people on the screen yet? The girls were waiting for MTV. No MTV.

The modulator portion of most home TVRO receivers is about a one in four shot for 'bad' in a situation like this. In other words, in about 25% of the failures that can be traced to the **inside electronics**, it will be the modulator at fault.

Maybe the modulator is not built-in. Maybe it is an outboard option. The rate of failure here is better, but still worth checking out. The bad side is that only leaves the inside guts of the receiver/demodulator. The good news is that the girls are still sitting there (well, reclining actually) waiting for MTV.

Now unless you are a very talented repair-type person, you probably have about as much business poking around inside of the demodulator/receiver as those girls do. But there is one thing you can do. Just in case you forgot to make a visual inspection of the inside of the demodulator way back in August when we were tracing out DC operating voltage, it would not hurt to take off the top and look now. Even again if the girls were not in the room the first time you did it.

What you are looking for is something very obvious. A dead mouse is very obvious. A large wet stain, indicating that somebody spilled coke into the receiver, is very obvious. A broken wire connecting the chassis F fitting from the back apron of the receiver to the circuit board is very obvious.

Since you are this far, let's let the girls help us.

Now one of the things every TVRO receiver will do when you turn it on (along with the down converter and the LNA) is spit noise at you. Noise? Noise from the sky or LNA. First turn on the TV set with the TVRO receiver off. Grey, not very attractive, nor very vivid. Now stare at the screen (tell the girls you are concentrating on the 'electrons') and have one of the girls switch on the TVRO system. Instantly the screen should light up with dancing black and white dots (sparklies) and the sound may even get louder; a subtle rushing noise. Let's assume it does all of this but still no MTV. Or anything else.

OK. Now while you watch the screen, carefully unscrew the F fitting on the cable that carries the 70 MHz **signal** from the outside down converter into the receiver. When it pulls loose the noise (sparklies) should go away and the sound hiss should subside. And if it didn't do this?

Do it again. Turn off the receiver and be sure that when you first turn on the receiver (and the rest of the system which is connected to the receiver) you definitely do have an increase in on-screen noise. Maybe the audio stays the same, but the picture tube should fairly dance at you with noise.

But, when you do it with the down converter disconnected, the noise doesn't go away? Now, what does that tell you?

Several things. Number one, something in the 70 MHz input demodulator/receiver is generating a bunch of noise. Too much noise. The only REAL noise in our system is supposed to come from the 4 GHz part of the system; the down converter and/or the LNA. If we disconnect that portion and still have the same on-screen noise, the receiver's IF or video amplifier or video demodulator sections have gone south. And taken MTV with them.

You won't fix that. But what you can do is stick a note inside the receiver when you send it back to the repair depot telling them what you observed. That might get you your receiver back a day or a week sooner since the technician will know where to start looking for a

problem.

Number two? You may have the TV set on the wrong TV channel!

It could happen. All of the messing around trying to be sure the power is OK and while you were doing that the girls or somebody went to channel 2 rather than channel 3 (or 4). Those darn, fancy all electronic tuners. Whatever happened to the good old click stop tuners that always told you exactly what you were set to, anyhow!

OK. Time to replace the demodulator/receiver. Of course you have one with you. Three minutes work and you are ready to push the buttons. MTV, followed by loud shouts of glee and hugging and carrying-on. Well, you didn't REALLY fix anything but you did get the system operational again.

"I'm not sure I am grateful!" the girl's mother says to you as you carefully pack up your tools and prepare to leave. "**Two days without MTV;** it was great! What do those KIDS see in that service, anyhow?" You are sure you don't know. But you promise to be back out with THEIR receiver just as soon as it comes back from the repair depot.

POLAROTOR TECHNIQUES

One of the more confusing aspects of TVRO system design facing the new installer is the comprehension of the polarization rotation system. Let's start with what polarization is all about, so we better understand why we have a polarization rotating package on the antenna feed.

The first U.S. satellites were WESTAR birds; they had 12 channels of capacity and the signals were all polarized at the satellite in a horizontal plane. Then along came RCA and shortly thereafter Comstar (using Hughes designed satellites) offering not 12 but 24 separate channels from a single satellite. Since the amount of bandwidth for the satellite service was fixed by international treaty/agreement, jumping from 12 to 24 was not simply a matter of using twice as much bandwidth. RCA and Comstar figured out a way to use the **same** (500 MHz of) spectrum space, **twice**. They did this by interleaving 24 transponders; one set was horizontally polarized at the satellite, and the other set was vertically polarized. This meant that every single-channel-width of space on board the satellite was actually being used two times.

This works because satellite signals are transmitted using a format called 'FM.' And two separate FM signals can occupy the same (frequency) space at the same time and not interfere with each other if there is at least an 18 dB 'power ratio' between the two signals. It turned out that if you sent one 5 watt signal on vertical polarization, and one 5 watt signal on horizontal polarization, using essentially the same frequency channel at the satellite, there would be 'isolation' between the vertical and horizontal signals of between 25 and 30 dB. Remember **we only need 18 dB** to keep one from interfering with the other; 25 was definitely safe and 30 was even better.

Since the signals could fly to and away from the satellite without interfering with one another, because they were using 'opposite polarizations,' the next trick was to separate them into their respective polarizations **on the ground**. That's where your terminal enters the picture.

In the early years, the TVRO installers found that they could place the LNA and feedhorn on a piece of pipe and connect that piece of pipe to an antenna rotor; the kind used for home TV antennas. The antenna rotor laid over on its side, sort of at an angle, and by operating the antenna rotor the whole LNA and the whole feedhorn rotated in front of the dish. By turning the LNA, you were also turning the 'probe' device inside of the LNA at the same time. The probe is that small 'rod' or 'stairstep' you see down inside of the LNA's open mouth end. When it faces straight across (even with the floor beneath you), it is 'polarized horizontal.' When it faces up and down, parallel to your body, it is 'polarized vertically.'

(*)—The mechanical 'TV antenna rotor' polarization system was first described in **CATJ** magazine by Coop in early 1978. It had been installed on his early pioneering six meter terminal system when RCA's F2 bird became the first to introduce TV programming on both polarizations simultaneously.

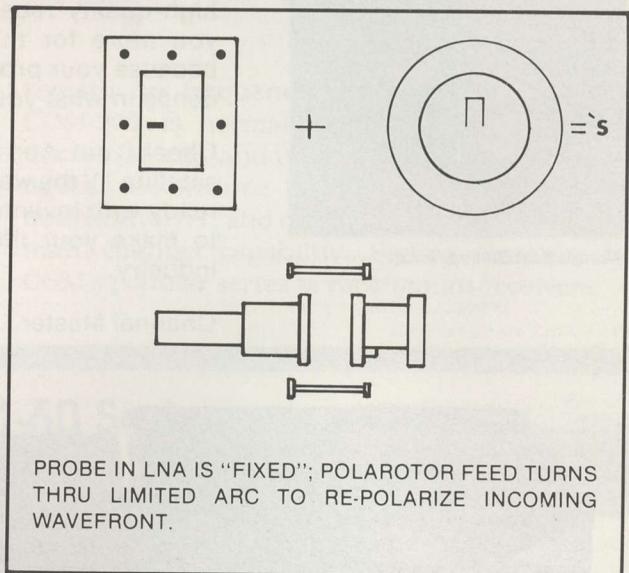
For a brief period Alliance and a few other manufacturers of TV antenna rotors enjoyed a boom in rotors. It lasted not much more than a year because having that big chunk of motor out there at the antenna feed point, and the noisy clank-clank-clank control box inside at the TV set, was not the best engineering solution to the problem. Still, probably more than 10,000 terminals today still use this original 'polarization rotation' system(*).

The love affair with TV rotors was short lived, for at the STTI Omaha show in the summer of 1981 a new approach appeared on the market. Actually, there were two separate devices introduced at that show; one by industry pioneer designer **Bob Luly** ('The Luly Umbrella Antenna') and a second by a firm in Florida that had created the device that perhaps preceded today's Polarotor system.

Luly's approach was to magnetically 'rotate' the signal as it passed through the feedhorn. The probe in the LNA stayed in one position while the signal was 'bent' by the magnetic field created by his gadget. This was a neat approach because you could switch from one polarization to the other with the speed of light, and you could stop at any point in between the two polarizations.

The second approach was more basic; you placed a second probe inside the feedhorn, and this second probe became the 'first probe.' That is, it 'saw' or intercepted the signals before they got to the probe located in the LNA 'mouth' proper. Then you 'coupled' or transmitted the energy intercepted by that out-front-probe through a section of 'waveguide' to the second (stationary) LNA probe. The first probe is connected to a very tiny motor and you have the control for that motor at the viewing location. Operating the control operates the motor and the bent piece of metal that makes up the new 'first probe' system rotates on your command.

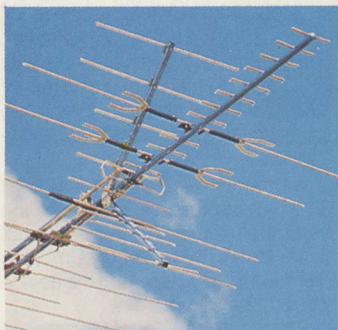
The **Chaparral Polarotor®** ("If it is not a Chaparral, it is not a Polarotor . . .") has the lion's share of the market. At various times, Chaparral's Bob Taggart talks about shipping upwards of 20,000 units in a single month. It is therefore likely that you, as an installing dealer, will have access to and use of a Polarotor quite often. You probably install them yourself; either by choice, or because the antenna manufacturer you purchase from makes them a part of the antenna package.



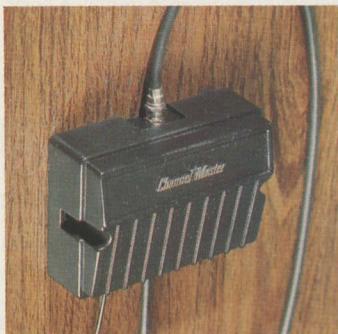
There are two basic versions of the Polarotor; the '1' and the '2.' The '1' has its own control; a small plastic case which is dominated by a black knob. Operating the knob gets you motion with the probe. The '2' has the same basic outdoor portion (a feed with a probe and a small motor) but you interface it to receivers which have internal polarization switching contacts. The receiver unit, in effect, supplies you with a

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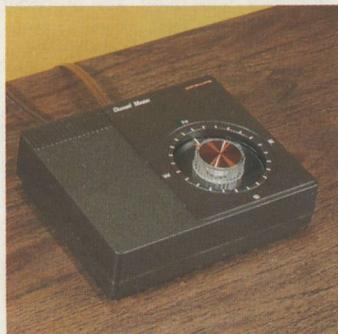
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COM-20T

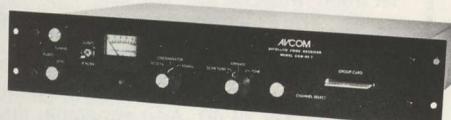
AVCOM's COM-20T High Stability Satellite Video Receiver is the answer to your need for a highly stable and reliable receiver for cable, private cable, radio stations, TV stations, BIZNET, News, Weather & Music Services, and other dedicated applications. The COM-20T can be factory or field adjusted to a particular transponder and will

remain on frequency without attention. The COM-20T is normally supplied with a remote downconverter and tunable audio. Optional configurations include fixed-tuned audio, internal downconverter, and downconverter switching for multi-channel capability. Styling matches AVCOM's popular series of rack mount receivers.



COM-66T

The COM-60 Series
for
Cost-Effective
Multi-Channel
Installations



COM-65T

- * Commercial Quality * Compatible with SA's 6650 system * Rack Mount, standard
- * Double Conversion * Flexible Downconverter (Use any degree and brand LNA) * High Stability

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AVCOM's Toll-free OrderLine 800-446-2500 (Orders Only)
All other inquiries phone 804-794-2500.

SERVICE/ continued from page 11

direct connection to the channel changing switch, through a vertical/horizontal switch built into the receiver. Rather than operating a black knob on a separate box, you operate a switch on the receiver proper. Or, in some of the latest receivers with 'detent tuning,' simply selecting a transponder number automatically operates the 'V' and 'H' positioning on the Polarotor.

There are many **stories** about the industry concerning the operation and reliability of the Polarotor. Here are a few, just to clear the air:

- 1) "The Polarotor has a maximum cumulative motor life of around 55 hours; when you have operated the motor for that many hours, total time, it quits."

True or false?

All motors have a finite life. At a few seconds (maximum) per use, 55 hours (or 155 hours, or whatever) is a lot of use. To be exact, 55 hours is 198,000 seconds. Now if the average use of the unit was for three seconds (we timed it and it is actually less than that), you have a life expectancy of 66,000 uses. That's a lot of channel changing or vertical to horizontal switching.

- 2) "The Polarotor has loss."

True or false?

Loss is a relative term. If you compare the system 'gain' with a standard feed (i.e. one that has a regular feedhorn such as the original Chaparral 'Super Feed') against a Polarotor, you probably **will notice** a very slight reduction in received signal level. You can measure this if you like, but it will be a tedious measurement requiring precise carrier-to-noise-ratio (CNR) or video signal-to-noise-ratio (SNR) measurement equipment. The 'loss' is understandable; the signal is being picked up first by an 'up front probe' and then it is being re-transmitted via waveguide to a second (LNA) probe. The transmission medium is not perfect, there is 'some loss.'

- 3) "The Polarotor does not have uniform gain/response."

True or false?

Uniform response/gain means that the system works with the same identical efficiency at transponder 1 as it does at transponder 12 and transponder 24; and all points in between. No feed is 100% 'flat' (equal gain across the full spectrum of channels). Some, however, **are** more flat **than others**. The up-front-probe system employed in the Polarotor is quite simple, but it is also very much subject to construction accuracy and tolerances. A very **slight change** in the location of the probe within the feed tube cylinder, or the length of the probe, or the concentric swing of the probe around the 'center' of the tube (a function of the motor drive stability) can change the feed efficiency dramatically. You do give up **some** optimized performance when you adopt a polarization rotation system such as this. How much you give up will depend upon the 'quality' of the individual polarization rotating device you are using. No two will be exactly alike.

One of the more 'common' problems is a 'mid-band suck-out'; reduced performance in the middle of the band; affecting transponders 10-14 typically, or some portion of this band. You might notice only one channel affected or several in a row. A very clever person might go inside the feed tube and reposition/trim the probe to correct this. You are better advised to return it to Chaparral for a replacement; let **them** tweek on it!

- 4) "The Polarotor does not have good cross pole isolation."

True or false?

Remember that when the vertical and horizontal signals leave the satellite, they are 'isolated' from one another by at least 25 dB and more typically 30 dB. Also remember that if your receiving system maintains an isolation of 18 dB or better, you are not going to see any sign of the unwanted polarization against or mixed-in with the wanted polarization picture.

There is **some loss** in polarization isolation with any feed of this sort. It may only be a dB or so, or it could be much worse. Those who have experienced this problem with the Polarotor usually find it in a narrow part of the band (such as transponder 13 being cross-poled by transponder 12). Once again the solution is to return the unit to the factory; don't attempt to mess with it yourself unless you are desperate (your chances of making it far worse exceed your chances of correcting the problem).

- 5) "The Polarotor leaks moisture and that shuts down the motor."

True or false?

Motors do certainly quit before their time. When you are shipping upwards of 20,000 of a tiny, inexpensive, motor per month, you are going to have some bad ones. Just a 1/2 of 1 percent failure rate would account for 100 bad motors per month. **You** might even get **two** of those the **same** month! That is not to condemn the system however; failures do occur.

Take a look at how the Polarotor and feed mount. It always looks 'down,' towards the ground (through the dish surface). Water **cannot** drain inside of a tube **that points down** at the open end! Water can condense, however, and if there are contaminants in the air (almost all air is 'dirty' in one form or another), this crud can coat the inner workings of the system; including the up-front probe and the motor shaft behind it. This can lead to motor failure, or, probe failure.

Chaparral added a clear plastic 'window' to the front tube this past winter, an attempt to 'seal' the outside air out of the tube. They did this after a number of installers began to complain about **probe fall-out** and/or motor problems. Whether the plastic window is a fix to the field problems reported only time will tell.

- 6) "The scalar-ring type feed corrodes in salty or polluted environments, causing a loss in performance."

True or false?

No question, the aluminum surfaces on the scalar rings do change with time. They pit and they 'corrode' and they turn 'ugly' to look at. But a loss in performance? To date nobody has taken the effort to measure the performance of a feed on a suitably accurate antenna test range, when the feed is brand new, and then six or twelve months later after the feed has been 'dirtied' by the outdoor exposure. Somebody is involved in just such a test at this time, but you can't hurry Mother Nature up; it will be many more months before the feed has gotten sufficiently 'corrupted' to warrant a second round of tests.

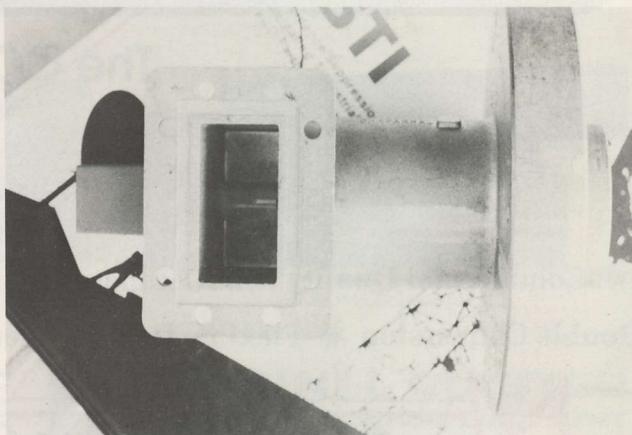
Does a dirty feed impair the performance? Nobody knows for sure. In the meantime, Chaparral has gone to a feed coating system to help retain the original 'factory look' on the feed; something which competitors (such as Boman) have been doing for quite some time.

Having cleared the air with most of the common 'stories' that abound in our relatively small industry, where does that leave us? For openers, let's make sure you know **how** to install a Polarotor properly.

THE Parts

Out of the box, you have the 'Super Feed' with the polarization rotation system built-in, a waveguide 'elbow,' and the controller. Also in the package (the '1' or '2') are a pair of gaskets and six bolts with nuts.

The first trick is to figure out how the LNA/LNC mounts to the Polarotor flange. The flange is the flat piece with 8 holes in it. The holes on the flange align with matching holes on the LNA/LNC. This particular flange arrangement, by the way, is called WR-229 waveguide and this is the 'standard size' for the 3.7 to 4.2 GHz TVRO band. Different microwave frequency bands have different 'standard waveguide sizing' since the waveguide dimension is a function of the



operating frequency of the system (lower frequencies use bigger waveguide; higher frequencies use smaller waveguide, just like antennas!).

You can install the LNA/LNC directly to the 8 hole flange on the Polarotor; this causes the LNA to protrude out from the side of the feed at a right angle. This is a 'direct' attachment and it avoids using the waveguide 'elbow.' Unfortunately, the LNA/LNC may not fit into your antenna feed enclosure (if you have one) if it protrudes at a right angle. That's where the 'elbow' comes in.

The elbow has two flanges; one of these flanges has 6 holes and one has 8 holes. Either flange can attach to the flange on the Polarotor proper. In both cases, the open end of the 'elbow' must point backwards, away from the dish, or it will not align with the holes on the Polarotor proper.

Not all LNA/LNC packages will mount with adequate clearance to stay above the 'top' of the (blue cased) motor to the rear of the unit. That's why you have a six-hole or eight-hole option; one gives you more clearance than the other. As it happens, a LOCOM LNA requires greater clearance than a California Amplifier LNA. Do NOT force the LNA onto the flange so that it shoves down on the top of the (blue cased) motor. Turn the flange around and start over.

The flange on the Polarotor proper has a groove in it. This groove is for the (red colored) 'gasket' that Chaparral supplies. The gasket is designed to provide a weather tight seal between either the LNA/LNC and the flange, or, between the flange and either the six or eight hole end of the elbow. **Use the gasket.** If you keep dropping it out while you are trying to seat the two surfaces together, apply a small dab of vaseline or adhesive to the groove to hold the gasket in place while you are putting the rest together.

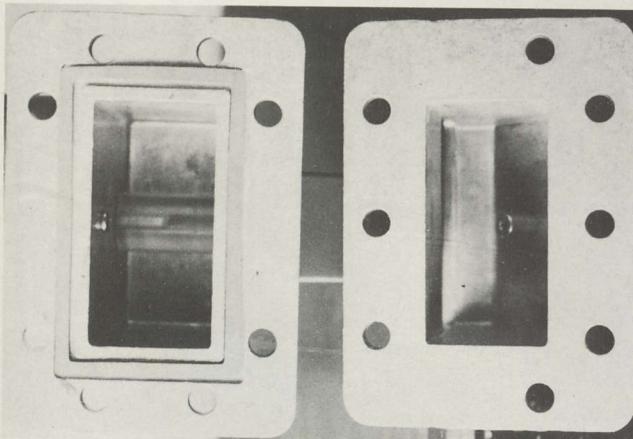
How many bolts to use? An age-old argument that merits little debate. All four sides should be secured; that means four bolt/nut combinations as a minimum. If they are tight (wrench tight, not finger tight), that will keep the surfaces from leaking moisture through. Moisture? No, you don't want the flange(s) leaking moisture or wet air. The gasket is a step in the right direction; but before you finish you must also use some Coax Seal or Silicone to finish the job (weather proofing is important).

Now we are to the LNA/LNC attachment, assuming we used the elbow to get us clear of the Polarotor motor. Once again, use the gasket (supplied by Chaparral) to fit into the groove on the LNA/LNC. The surface on the elbow is flat (i.e. grooveless) and if you simply bolt the LNA/LNC to the flat plate flange on the elbow, you will leak moisture! And, seal the flange to flange seams with Coax Seal or Silicone.

THE Mounting

It may be advisable to unpack the controller (Polarotor 1) or connect up the feed directly to the receiver (Polarotor 2) to check it out before you hang the whole apparatus on the feed support. If you have one of those 1/2 of 1 percent failures, wouldn't it be better to know this before you get out there at the focal point on a ladder?

There are many different antenna feed support techniques in use today; no two are alike. Most, however, give you a system so that you



can mount the Polarotor Super Feed to a plate by using the four 90 degree spaced, outer mounting holes, drilled through the outermost ring-floor in the scalar feed. In our example here, the Paraclipse 12 foot antenna has a flat half-circle (plus) plate with three holes in it. The obvious question is 'which of the four holes on the scalar plate do I attach to the three holes on the mounting plate?' You may wonder why this would make any difference. Any three to any three, as it were.

Well, it could make a difference and until you have figured out why, you may be building in an installation problem for yourself.

The small motor that moves the probe does not make a complete circle; that is, not a 360 degree turn. It doesn't have to since you can creep up on vertical and then horizontal by moving the feed just 90 degrees (1/4th of a circle). What they give you is about 40% of a circle to play with, give or take ten degrees.

Let's assume that vertical is at 90 degrees. It will also be at 270 degrees, or exactly 180 away. That would make horizontal at 0 and 180 (yes, this would be a very strange location on earth; bear with us!). What you don't know, the first time you install one, is exactly where the feed probe rotates from and to. You may have a probe so constructed that it rotates from say 90 to 240 or so. That's fine for our (example) horizontal, but the vertical is at one end of the rotation range. The control, as you operate it, is 'up against the stop.' Now, what happens if you take the feed off and move it 90 degrees (remember the holes are equally spaced 90 degrees apart). Yup, now the horizontal is up against the stop and the vertical is so positioned that you can peak it and then go through the peak slightly towards the opposite polarization. Your problem is still not solved.

This series will continue in the October issue of CJR.

CALENDAR/ Through November 1st

SEP 15: 'Buying Your Own Earth Station; Making The Right Decisions' (one day conference for those planning systems for motels, hotels, hospitals, colleges, businesses). No exhibits. (Washington, DC) contact 202/331-1154. (***)

SEP 19/20: 'Space Systems 2001' (symposium to assess Defense Department needs in space; partially carried via satellite [transponder, bird not announced] to Dallas et al). (Washington, DC) contact 202/638-7430. (***)

SEP 24-27: ILC Annual Conference, Aruba (sessions on industrialization of Space, high definition TV, DBS). (Aruba, DWI) contact London 01-388-0671. (**)

OCT 3-5: 'Space Operation/80s-90s' (annual conference American Astronautical Society; sessions DOD space operations, NASA operations). (Colorado Springs, Co.) contact 703/751-7323. (***)

OCT 18/21: 'Space Communications In 80s' (conference on risks of investing in satellite communications, other forward technologies). (Washington, DC) contact 202/331-1154. (***)

OCT 23-25: 'Televent '83' (conference preceding ITU meeting; policy, regulatory, technical aspects international telecommunications) (Geneva, Switzerland) contact 202/857-4612. (***)

CANCEL:

OCT 8-10: '83 Sat Expo,' San Jose, Ca. Insufficient support.

NEW BIRDS/Through November 1st

RCA F2R scheduled to begin tests middle of September, 72 west; 24 channels, all 8.5W.

AT&T TeleStar 1 scheduled to begin operational tests 96 (95.5) west middle of September after shake-down at 66 west during past 30 days; 24 channels, all 8.5W, scheduled for heavy CBS/ABC network service when operational.

Hughes Galaxy II scheduled launch during September (74 west Clarke orbit position); 24 channels, all 9 watts, narrow band data only anticipated.

Explanation of rating system:

* — Event not recommended.

** — Marginal event with one or more serious flaws.

*** — Good event, recommended if topic matter is of interest to you.

**** — Superior event, recommended if you have any interest in satellite communications.

HURRICANE

Your antenna will have to face the wind and weather every hour of every day of its life. This will be its toughest test. To survive, you'll need equipment built to take whatever nature can throw at it. You'll need Paraclipse.

It is impossible to gather conclusive data about storm-generated stress unless you can control the storm. So we hired a "professional hurricane" and put our antennas to the test.

We dumped 337 gallons of water into a 95 mile per hour windstream to create a wind load equivalent of 140 m.p.h. Each antenna was tested at 5 different elevation angles and was blasted from 8 different sides. After several hours of abuse, both Paraclipse antennas emerged in perfect shape.

Off-air satellite signal evaluation at the end of the tests, indicated the Paraclipse antennas maintained the same electrical parameters as prior to the tests.

After testing measurements show no warping of the parabolic welded aluminum truss structure or mount assembly. Both antennas, in spite of the loads to which they were subjected, maintained parabolic symmetry.

In conclusion, both Paraclipse High Performance Satellite Antennas suffered absolutely no structural damage. Not even one piece of mesh was bent or one clip lost.

Paraclipse is strength in performance.

Paraclipse

HIGH PERFORMANCE
SATELLITE TELEVISION SYSTEM

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